A X E Z E

Access Control Products

AXEZE CREDENTIAL MANAGEMENT

User Guide

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17/3/2014

This User guide is designed to provide you with the “How To” to use the software when Configuring the Axeze KEP Reader

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AXEZE CREDENTIAL MANAGEMENT

1.0 BRIEF INTRODUCTION

We present you with an innovative product based on RFID technology, which is developed on the basis of the latest developments and advanced technologies in the field.

The Axeze Credential Management enables computer users to identify a tag number which can be used in the manner the end user desires

To check that the Axeze KEP Reader is working, or check the code of a tag simply Open WordPad or similar place your cursor at the front of the text box/page and badge the reader and the system will identify the tag number.

Open the Axeze Credential Management software, connect to the Axeze Reader and you will be provided with information like the serial number of the Axeze Reader, its firmware version and whether it is password protected etc. With this software, you will be able to configure and upgrade the Axeze KEP Reader.

This Axeze Credential Management software is used for configuring the Axeze KEP reader and to upgrade the reader firmware.

This User Manual has been designed for those who wish to configure the reader providing different configurations for various uses including but not limited to setting encryptions, passwords, and outputs or to update the firmware.

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1.2 SOFTWARE PRODUCTS USER LICENCE

The Axeze Credential Management software is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The software is free it is not sold.

Grant of License. This EULA grants you the following rights:

- Installation and Use. You may install and use this Axeze Credential Management software.
- Reproduction and Distribution. You may not reproduce or distribute copies of the Axeze Credential Management software. You may make one backup copy of the Axeze Credential Management software for the purpose of recovery only.

1.3 DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS

Limitations on Reverse Engineering, Decompilation, Disassembly and Re-Engineering. You may not reverse engineer, decompile, disassemble or make changes to through re-engineering the Axeze Credential Management software, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation.

Software Transfer. The Axeze Credential Management software may not be resold, rented, leased, lent, or its value transferred once installed or if subsequently rejected.

Termination. Without prejudice to any other rights, Axeze may terminate this EULA if you fail to comply with the terms and conditions of this EULA. In such event, you must destroy all copies of the Axeze Credential Management software and all of its component parts.

1.4 COPYRIGHT

Software: All title and copyrights in and to the Axeze Credential Management software (including but not limited to any images, photographs, animations, video, audio, music, and text incorporated into the Axeze Credential Management software), the accompanying printed materials, and any copies of the Axeze Credential Management software are owned by Axeze. The Axeze Credential Management software is protected by copyright laws and international treaty provisions. Therefore, you must treat the Axeze Credential Management software like any other copyrighted material.

Data. All database files, export files, reports and other user created content produced by the Axeze Credential Management software as part of normal use are owned by and copyright attributed to the user. Data created by the Axeze Credential Management software as part of internal workings such as but not limited to error handling, performance optimization, caching, statistical analysis and temporary working files remain the property of Axeze.

1.5 NO WARRANTY

Limitation of Liability. Axeze's entire liability and your exclusive remedy under this EULA shall not exceed one dollar (AUD$1.00).

No Warranties. Axeze expressly disclaims any warranty for the Axeze Credential Management software. The Axeze Credential Management software and any related documentation is provided “as is” without warranty of any kind, either express or implied, including, without limitation, the implied warranties or merchantability, fitness for a particular purpose, or non-infringement. The entire risk arising out of use or performance of the Axeze Credential Management software remains with you.

No liability for consequential damages. In no event shall Axeze or its suppliers be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use this Axeze product, even if Axeze has been advised of the possibility of such damages. Because some jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

1.6 MISCELLANEOUS

This EULA is governed by the laws of the State of South Australia.

If this product was acquired outside of Australia, then local laws may apply.

Should you have any questions concerning this EULA please contact Axeze!

2.0 AXEZE CREDENTIAL MANAGEMENT

2.1 INSTALL AXEZE CREDENTIAL MANAGEMENT SOFTWARE

It is likely that we will provide you with a link to our software on our website so that you can download and install the software in the traditional way.

Alternatively we may provide you with a disc, or email the file, so that you can install the software in the traditional way.

2.2 SYSTEM REQUIREMENTS FOR AXEZE CREDENTIAL MANATEMENT SOFTWARE

System requirements include the following:

- Operating System:
    - Windows XP
    - Windows Vista / 7 / 8
    - Windows Server 2003 (R2) / 2008 (R2) / 2012 (R2)
- Microsoft .NET Framework 4.0
- Windows Installer 4.5

2.3 UNINSTALL AXEZE CREDENTIAL MANAGEMENT SOFTWARE

To uninstall the software: go to the Control Panel and uninstall or Run the Setup file, you will be prompted to either Repair or Uninstall the software.

3.0 AXEZE CREDENTIAL MANAGEMENT TIPS

This software communicates with Axeze Readers and sends the badged card code to the current position of the cursor. It can send a tag code to any Text Control - It enables smooth ongoing development.

3.1 SET AND GET

Throughout the software you will need to click on “Get” or “Set” to commence configuration or complete the task underway.

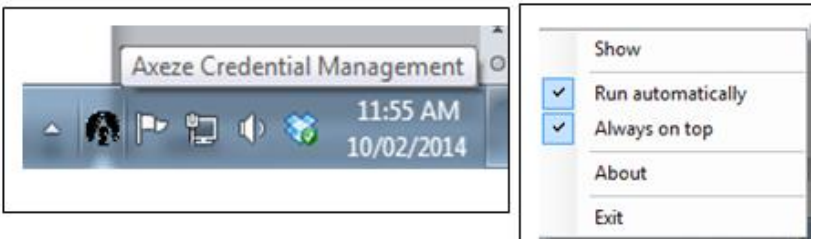
- Get will retrieve the information already on the reader
- Set will send the configuration that you have entered

As you use the software you will be advised what task is being undertaken.

3.2 OPEN AXEZE CREDENTIAL MANAGEMENT

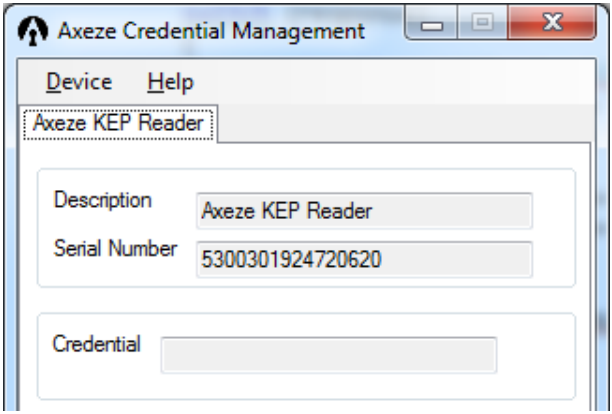
To open the Axeze Credential Management program you need to carry out the following:

- Select Start menu
- Select Axeze Credential Management (you may need to select (All programs/Axeze Products/Axeze Credential Management) the software will open and place the Axeze Credential Management logo in the task bar as shown below.
- Right click on the Axeze Credential Management icon
- Click Show



When the Axeze Credential Management software is open you will see this screen which will show you the following:

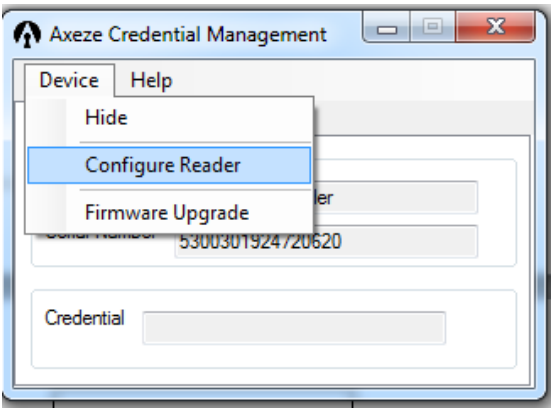
- Description Of the Axeze KEP reader
- Serial Number: Unique serial number which cannot be changed
- Credential: Will show the credential number of the badged card.



4.0 CONNECT TO THE AXEZE KEP READER

To connect to the Axeze KEP Reader

- Click Device
- Click Configure Reader

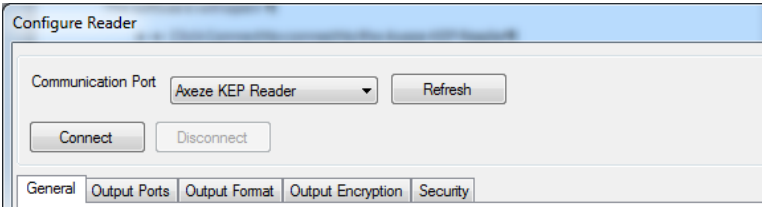


The software will open

- Click Connect to connect to the Axeze KEP Reader

When the screen opens you will see the following:

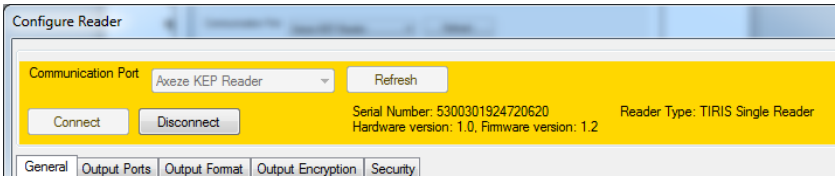
- Communication Port shows available connection ports
- Refresh will refresh communication ports
- Connect will connect to the Axeze KEP reader
- Disconnect will disconnect from the Axeze KEP reader



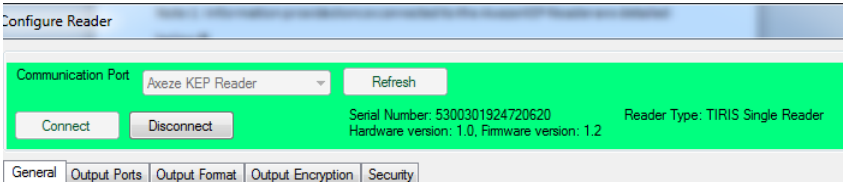
Note 1: Information provided once connected to the Axeze KEP Reader are detailed below.

- Serial Number – of the Axeze KEP Reader
- Hardware version
- Firmware Version
- Customization Code (if available)
- Reader type

Yellow background shows that you are connected to the Axeze KEP Reader and that no password is set on this reader.

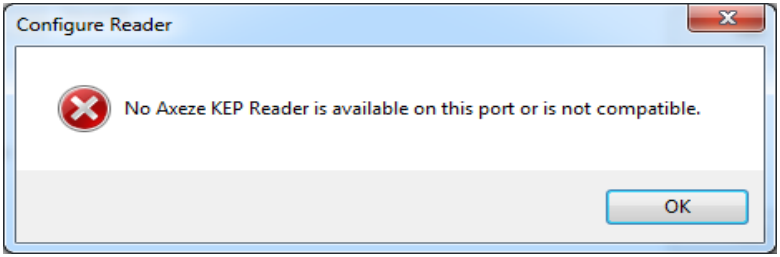


Green background shows you are connected to the Axeze KEP Reader and that the reader is password protected.

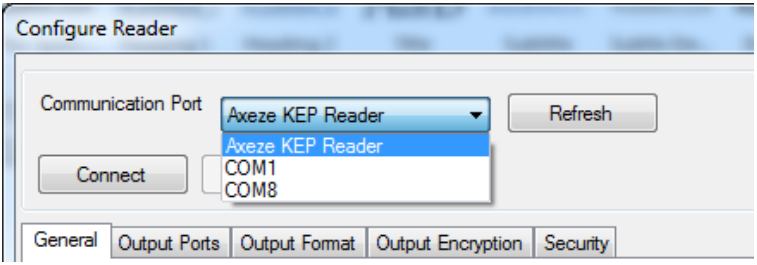


4.1 NOT CONNECTED TO AXEZE KEP READER?

If you receive the message below you will need to try the following:



- Look at the reader-does it have a flashing LED?
- Look at Axeze Credential Management icons - are there more than one running? If so close all but one.
- Check which Port you are connected to, (if you selected connect to a COM port make sure the reader is connected to that Communication port.)
- Disconnect the Reader from the USB Port, and reconnect it,
- Click Refresh
- Click Connect

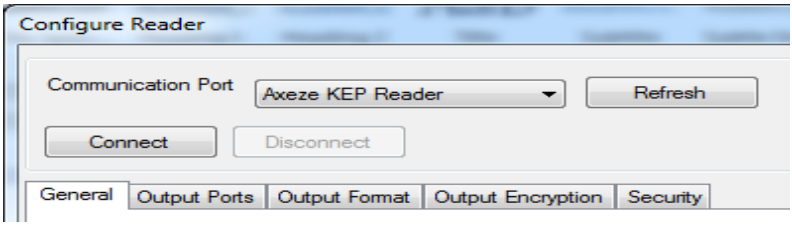


5.0 CONFIGURE READER

There are extensive parameters under each tab that can be configured in the Axeze KEP Reader.

Configuration features are categorised under these tabs:

- General
- Output Ports
- Output Format
- Output Encryption
- Security

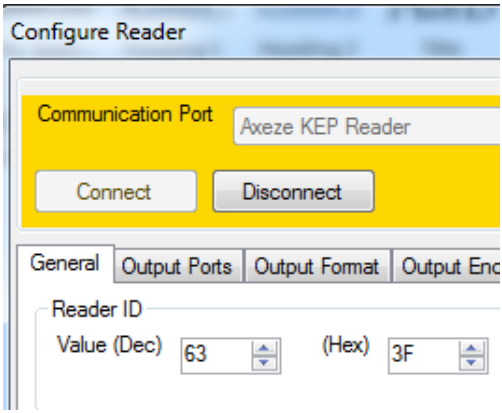


5.1 READER ID

The Axeze KEP Reader can have it's own ID for security purposes, programming purposes, site management purposes, or other purpose as known by the user. Each processor used in the Axeze KEP USB reader comes from the factory with a unique serial number. This makes every Axeze KEP USB Reader is traceable which is very important for government identity management projects.

You can set the Reader ID Value and it will show as Decimal and Hexadecimal.
(See example below, reader ID is Set to 63 in Decimal and 3F in Hexadecimal.)

Click Set to send the Reader ID to the Axeze KEP Reader.

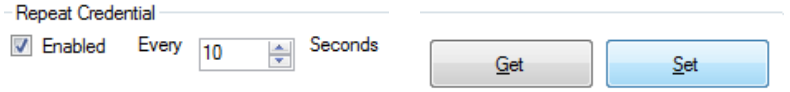


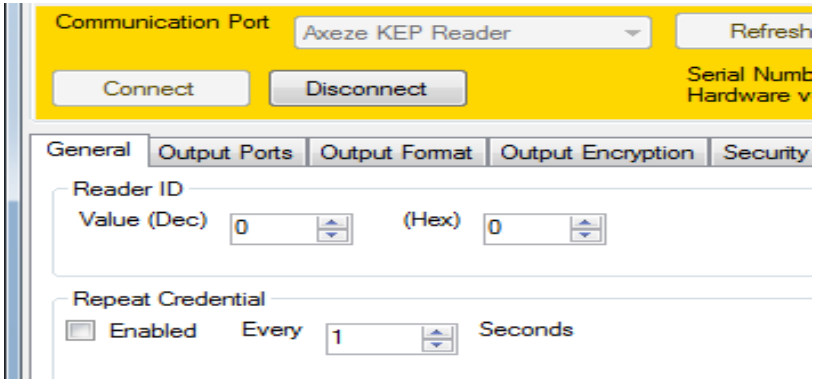
5.2 REPEAT CREDENTIAL NUMBER

There are times when you may want to have the system repeat the Credential Number at the time of badging. This is selectable up to 120 seconds.

At Repeat Credential, Enable the Repeat, and Set how often you want the repeat to occur.

Click Set to send the Repeat Credential to the Axeze KEP Reader.





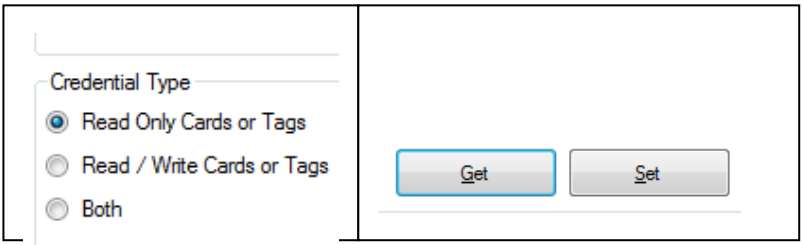
5.3 CREDENTIAL TYPE

You can configure the software to read the Credential Type. The type can be one of the following:

- Read only Tags
- Read/Write tags
- Both

Select the Credential Type

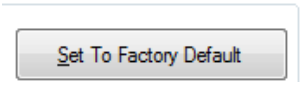
Click Set to send the Credential Type to the Axeze KEP Reader



5.4 SET TO FACTORY DEFAULT

There are times when you may wish to set the Axeze KEP Reader to the Factory Default.

Warning, if you "Set" the Axeze KEP Reader to Factory Default you will lose the entire current configuration on the reader.



Note 2: Setting to Factory Default WILL ERASE all encryption keys.

Note 3: Setting to Factory Default DOES NOT REMOVE Password Protection.

6.0 OUTPUT PORTS

Output ports are selectable and configurable by using the Axeze Credential Management software.

Depending on the Axeze KEP Reader model, one or more outputs can be supported.

- USB HID Generic
- USB HID Keyboard
- USB CDC Virtual Com Port
- On-board Serial Port (RS-232)

These output activations can be changed by using Axeze Credential Management software; Configure Reader. When using USB model of Axeze KEP Reader, the appropriate driver will be installed automatically by the operating system for both USB HID generic and USB HID keyboard. To install USB CDC virtual com port a specific driver is needed which comes with Axeze Credential Management or can be downloaded from the Axeze website http://axeze.com.au/support/downloads/Axeze KEP Reader USB CDC Virtual COM Port Driver

Depending on the model of the Axeze KEP Reader and its cable, the Serial Port enables on-board Serial Port access to this Output

Note 4: *For serial communication the following Settings should be used:*

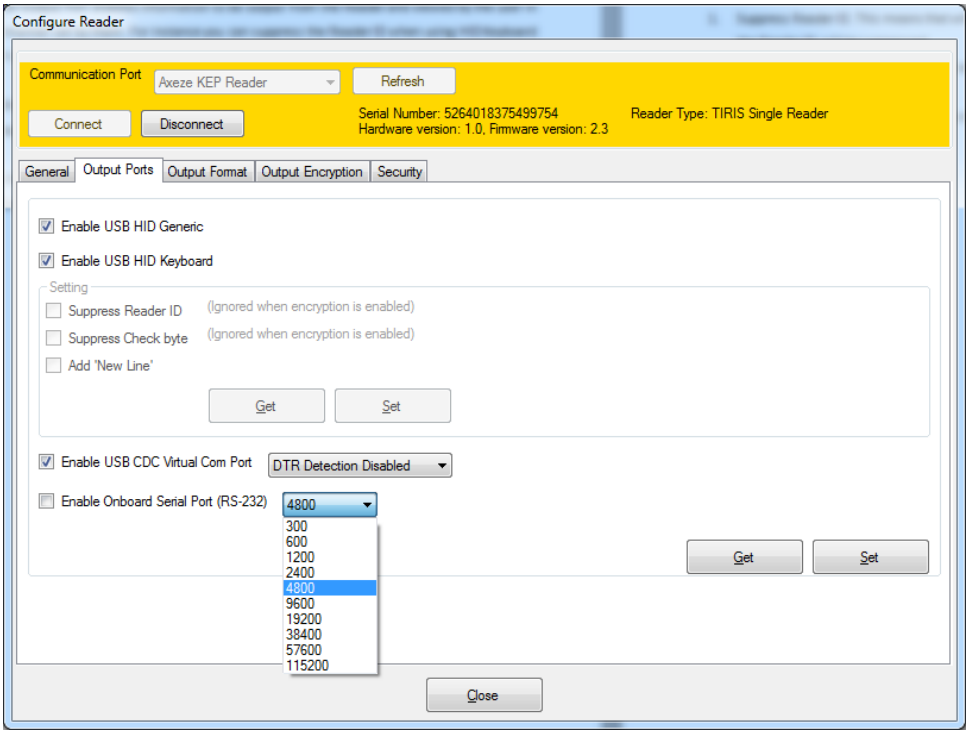
	Baud rate	*Data bits*	*Parity*	*Stop bits*	*Flow control*
USB CDC Virtual Com Port	*Any*	*8*	*None*	*1*	*None*
On-board Serial Port (RS-232)	*115200*	*8*	*None*	*1*	*None*

6.1 CONFIGURING OUTPUT PORTS

The Output Port enables information to be output from the Reader and viewed by the user in a manner set by them. For instance you can suppress the Reader ID when using HID Keyboard or you can suppress the Check byte or both.

When using USB HID Generic or USB HID Keyboard you can modify the settings so that the Reader suppresses information or adds a new line when a tag is badged.

In this sample you can see that the USB HID Generic and USB HID Keyboard are both enabled.
USB CDC Virtual Com Port can be set to enable or disable the DTR.
When enabling the Onboard Serial port you can select the baud rate.



There are three settings which are related to the HID keyboard available in this section which can be set to suit your needs.

1. Suppress Reader ID. This means that when a tag is badged on the Axeze Reader that the Reader ID will be suppressed.
2. Suppress Check byte. This means that when a tag is badge on the Axeze Reader that the Check byte will be suppressed
3. Add 'New Line'. This means that when the tag is badged on the Axeze reader that the cursor will move to the next line.

7.0 OUPUT FORMAT

Output format provides you with the opportunity to configure the output to suit your needs. This part of the software provides you with even greater functionality and it is a very powerful part of the Axeze KEP reader. You have control of which information you want sent in any number of ways. For instance:

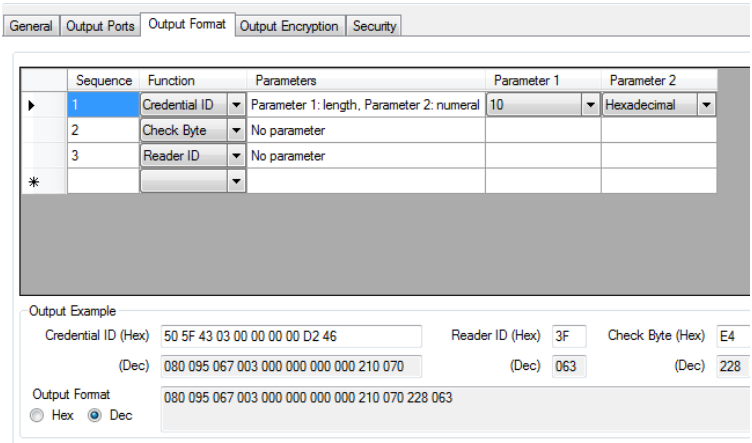
- You can change the sequence of how the information appears
- You can set the parameter values if required
- You can select the entered data you want to send.
- You can set the length of the credential code you want to send.

The functions available to configure the reader are:

- Reader ID – has no Parameter available
- Credential ID – has Parameter 1: length, Parameter 2: numeral (chose Hexadecimal or Decimal)
- Check Byte - has no Parameter available
- Data – has Paramater 1: value, you can set the value 1-10.
- To ASCII – has Parameter 1: numeral, this can be in hexadecimal or decimal.

You can set some of functions two or more times as desired.

You can move the functions around as you desire



8.0 OUTPUT ENCRYPTION

The Advanced Encryption Standard (AES), the symmetric block cipher ratified as a standard by National Institute of Standards and Technology of the United States (NIST), was chosen using a process lasting from 1997 to 2000 that was markedly more open and transparent than its predecessor, the aging Data Encryption Standard (DES). With the Axeze KEP Reader you can enable the Output Encryption desired.

When 'Output Encryption' is enabled, the number of output bytes from the reader is always a multiple of sixteen depending on whole 'output format' length. In the other word, the length of original output format will always get normalized by adding zeroes to the end of it to make it divisible by sixteen, for example:

Original 'output format' before encryption:

3F 50 5F 43 03 00 00 00 00 D2 46 E4 *(Four zeroes will be add to end before encryption)*

The encrypted output:

E5 9E 66 2C C4 D5 F4 BD 33 00 FD 48 ED 44 19 31

(Encrypted by using a pair of encryption KEY/IV)

The decrypted output:

3F 50 5F 43 03 00 00 00 00 D2 46 E4 00 00 00 00

(Decrypted by using the same encryption KEY/IV)

The Axeze KEP Reader encryption is compliant with the FIPS (Federal Information Processing Standard) Publication 197, Advanced Encryption Standard (AES) which specifies a symmetric block cipher that is used to encrypt and decrypt electronic data.

Encryption is the transformation of a usable message, called the 'plain text', into an unreadable form, called the 'cipher text'. On the other hand, 'decryption' is the transformation that recovers the 'plain text' from the 'cipher text'.

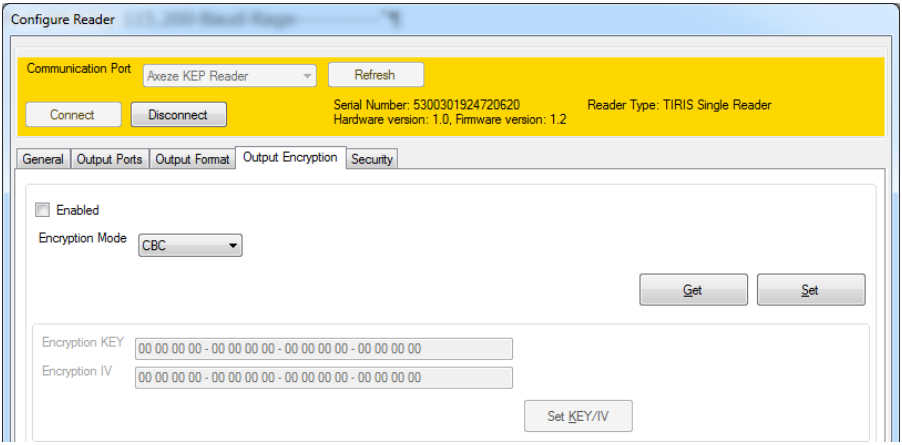
The Axeze KEP Reader encryption supports 128 bits cryptographic key size. It also supports all five confidentiality modes of operation for symmetric key block cipher algorithms as recommended in the NIST (National Institute of Standards and Technology) Special Publication 800-38A, Recommendation for Block Cipher Modes of Operation - Methods and Techniques.

These five supported modes of encryption operation are:

1. Electronic Code Book (ECB)
2. Cipher Book Chaining (CBC)
3. Cipher Feedback (CFB)
4. Output Feedback (OFB)
5. Counter (CTR)

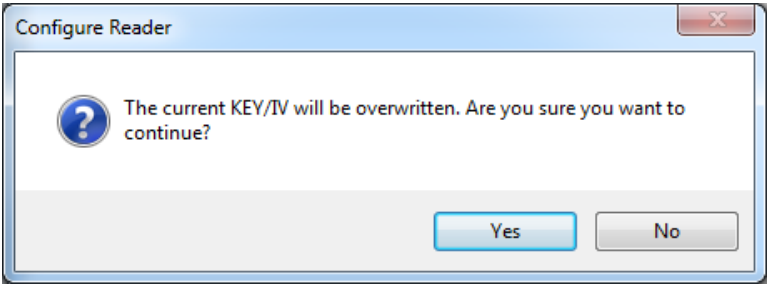
These modes have some advantages and disadvantages over each other. It is recommended to understand these differences before selecting an encryption mode.

- Click Get to retrieve the Encryption Mode from the reader.
- Check Enabled to enable the Encryption Mode
- Select the Encryption mode (one of five) from the drop box
- Click Set to send the chosen encryption mode to the Axeze KEP Reader.



8.1 TO SET THE KEY/IV

The encryption key and initial vector (IV), two sixteen byte hexadecimal values, should match with the decryption key and IV.



9.0 SECURITY

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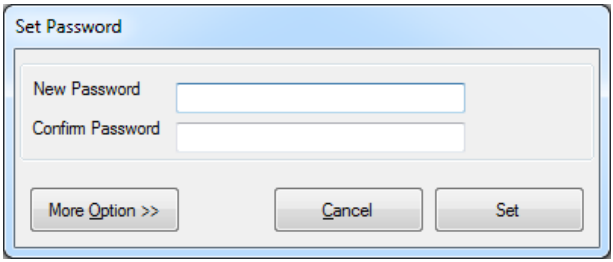
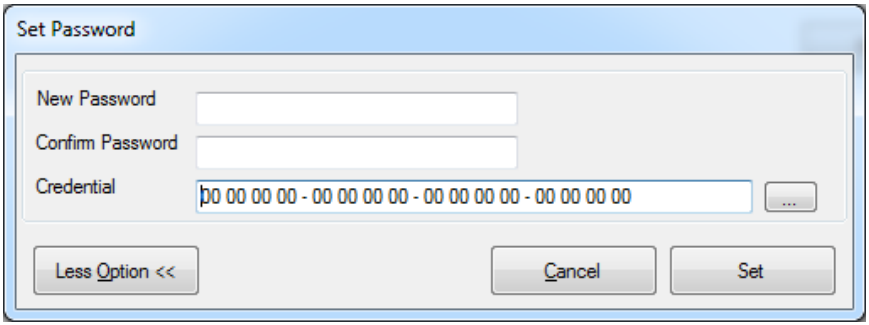
9.1 SET PASSWORD

You can set a password to protect the reader. The password is not lost when someone resets an Axeze KEP Reader to Factory Default.

If somebody tries to hijack the password, the Axeze KEP Reader has ability to lock down the reader.

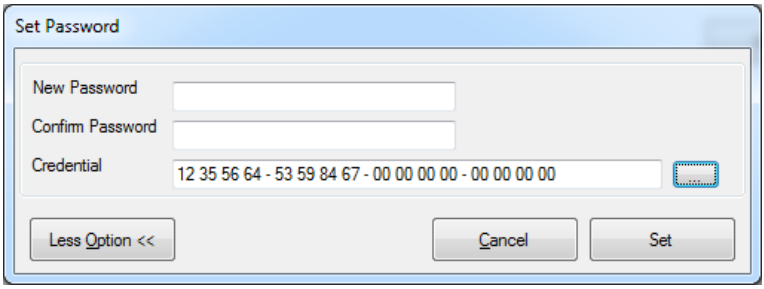


Credential value allows you to store credentials, such as user names and passwords that you use to log on to websites or other computers on networks.



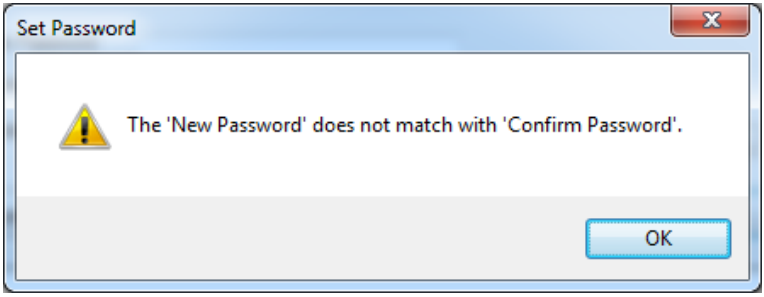
To Set the Credential value you can do any of the following:

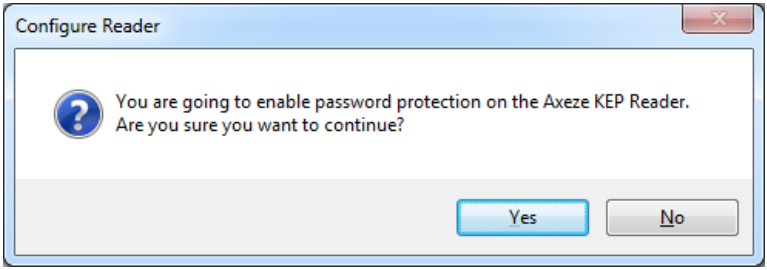
- Enter up to 16 characters of your choice as hexadecimal numbers in the Credential box.
- Place your cursor at the beginning of the Credential Box and badge you RFID tag on the Axeze KEP reader or
- Click More Options
- Click at the end of the zeroes in the Credential box and select the file from your secure file area on the PC.

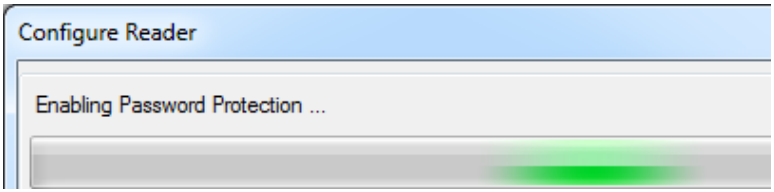


Note 5: If you do not set your password correctly, you will be advised.

- Click Set, the password will be sent to the Axeze KEP Reader.

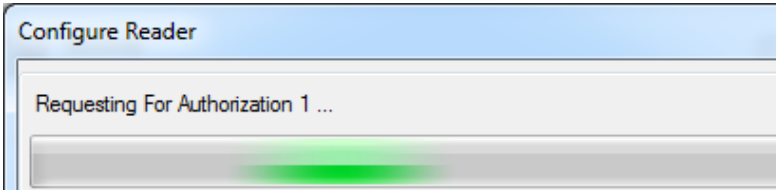



Configure Reader
You are going to enable password protection on the Axeze KEP Reader.
Are you sure you want to continue?
Yes
No

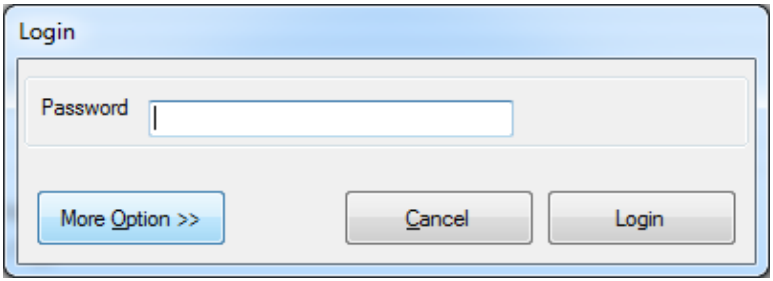


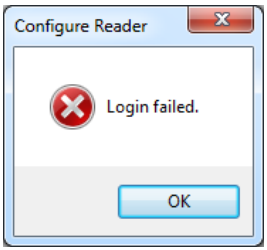
From now on as you open the Axeze Credential Management you will notice that the system Requests Authorisation in two stages.

- One to request login details
- Two to confirm login details



At ”Authorization 1” you will be asked to enter your password.





If the Password is entered incorrectly you will be advised that the Login Failed. Below you will see how the system increases the time before a retry is permitted.

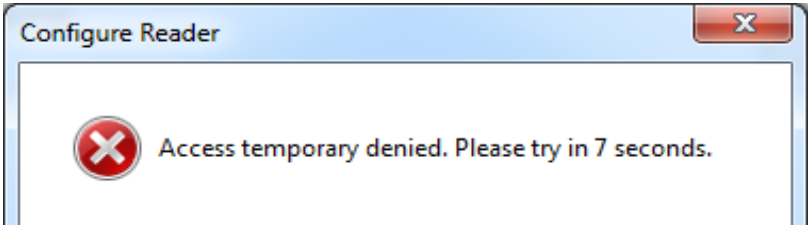
The system will automatically do the countdown of seconds before the next try is permitted.

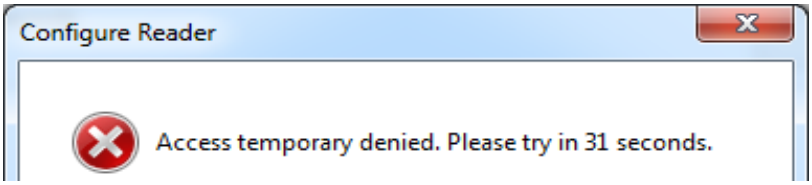
If someone tries to enter the password incorrectly they will be shut out of the system for varying amounts of time, depending on the number of times they have tried to enter the system.

The system counts the seconds before a new attempt is permitted.

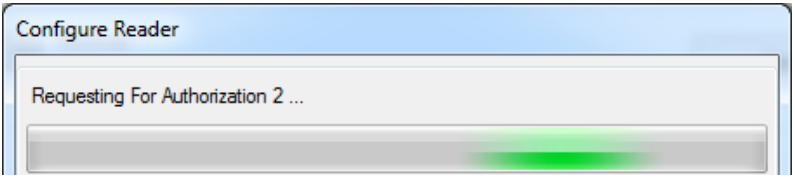
The system will advise the time lag if someone tries to enter the system prior to the time lag.

The more attempts a person makes to enter the incorrect password the longer the lag.



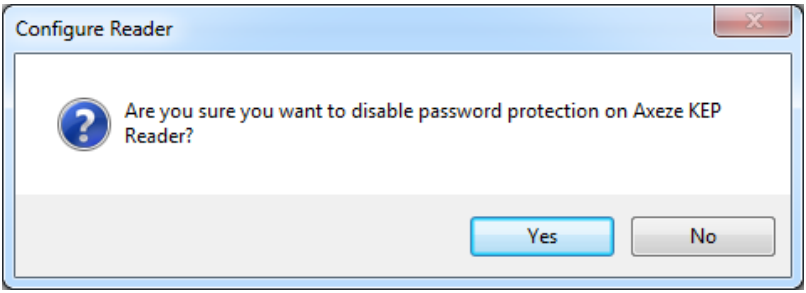


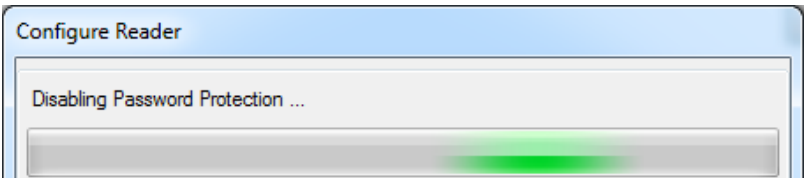
When the Password is entered correctly the second Authorisation takes place.

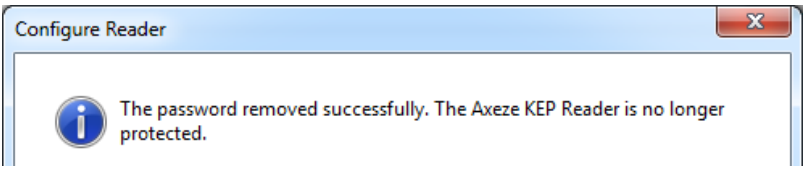


9.2 REMOVE PASSWORD

To remove the password, click on Remove Password and follow the prompts.







10.0 GLOSSARY

AXEZE KEP READER

A specific reader designed as a Clerk Logon or ID management tool whereby developers can track, allow, follow, manage individuals for specific purposes.

CREDENTIAL

For the purposes of this software a **credential** is card, fob or wristband issued to an individual or user.

LOCKS and **LOGIN CREDENTIALS**

These are two analogous mechanisms of access control or ID management.

HID

Human Interface Device. USB HID class is a part of the USB specification for computer peripherals.

HID GENERIC

HID Generic is a component of the HID USB specifications.

ASCII

ASCII is an acronym for the *American Standard Code for Information Interchange*. ASCII is a code for representing English characters as numbers, with each letter assigned a number from 0 to 127.